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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/817,416

04/02/2004

Daniel J. Goodman

NC 95,855

3209

26384

7590

07/28/2005

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EXAMINER

NGUYEN, DUC M

ART UNIT

PAPER NUMBER

2685

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/817,416	<b>Applicant(s)</b> GOODMAN, DANIEL J.	
	<b>Examiner</b> Duc M. Nguyen	<b>Art Unit</b> 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 20-53 is/are rejected.
- 7) ☒ Claim(s) 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Information Disclosure Statement*

1. The references listed in the information disclosure statements submitted on 4/2/04 has been considered by the examiner (see attached PTO-1449). However, a **third** sheet of the IDS is missing from the record. Please resubmit it in the next communication for reconsideration by the examiner.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims **1-9, 14-16, 23-31, 50-53** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Oto** (US **5,437,051**) in view of **Mattison** (US **6,345,176**).

Regarding claim **1**, **Oto** discloses a superheterodyne receiver suitable receiving RF energy in an upper frequency band and a lower frequency band and for translating the received RF energy to an output frequency, the receiver comprising:

at least one attenuator for attenuating the received RF energy (see Fig. 3, refs. 14 A, 14 B);

a first mixer (20 A) arranged for mixing the RF energy in the lower frequency band with a first local oscillator signal to produce a signal at a first intermediate

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frequency;

a second mixer (20 B) arranged for mixing the RF energy in the upper frequency band with the first local oscillator signal to produce a signal at a second intermediate frequency; and

a third mixer (see demodulator 60) for mixing a second local oscillator signal with the signal at the first intermediate frequency or with the signal at the second intermediate frequency to produce a signal at the output frequency. Here, in order to demodulate IF signal to baseband signal, it is clear that a third mixer and a second local oscillator signal is inherently required in order to perform such demodulation process.

However, **Oto** fails to disclose a switch arranged to direct the first local oscillator signal to the first mixer or to the second mixer. However, **Mattison** discloses a front-end circuit having at least two amplifier-mixer cascades, wherein a switch is arranged to direct the first local oscillator signal to the first mixer or to the second mixer for reducing power consumption (see **Fig. 1** and **Abstract**). Since the front-end circuit in **Oto's** reference also has at least two amplifier-mixer cascades, it would have been obvious to one skilled in the art at the time the invention was made to provide the above teaching of **Mattison** to **Oto** for incorporating a switch as claimed, for switching the amplifiers on/off via mixers for reducing power consumption.

Regarding claim **2**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, **Oto** discloses first and second attenuators as claimed (see Fig. 3, 14A, 14B).

Regarding claim 3, the claim is rejected for the same reason as set forth in claim 2 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to modify Oto to replace the amplifiers 16 in Oto with a limiter-amplifier or limiter as claimed, for stability purpose.

Regarding claims 4-5, the claims are rejected for the same reason as set forth in claim 2 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to modify Oto to provide a tunable feature as claimed to attenuators in Oto, for providing flexibility capability.

Regarding claim 6, the claim is rejected for the same reason as set forth in claim 2 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to modify Oto to provide MMIC as claimed, for cost and size reduction.

Regarding claim 7, the claim is rejected for the same reason as set forth in claim 2 above. In addition, Oto discloses inputs and as claimed (see Fig. 3).

Regarding claim 8, the claim is rejected for the same reason as set forth in claim 2 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to modify Oto to further include gain blocks (amplifiers) as disclosed by Mattison (see Fig. 1, refs. 10, 11), for further improving signal reception quality.

Regarding claim 9, the claim is rejected for the same reason as set forth in claim 6 above.

Regarding claim **14**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to further modify Oto and Mattison to use drop-in components for mixers as claimed, for further improving the performance of the mixers.

Regarding claim **15**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to further modify Oto and Mattison to eliminate filter and/or amplifier between the input and the mixers as claimed, for cost saving.

Regarding claim **16**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, it is clear that Oto would disclose a LO tuner as claimed (see Fig. 2, VCO 22 and Fig. 2, col. 1, lines 27-30 and col. 2, lines 6-52).

Regarding claims **23-27**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to further modify Oto and Mattison to provide a receiver operating in frequency range as claimed, for compliance with the FCC regulation.

Regarding claim **28**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, it is clear that a power source is obviously needed in order to operate the receiver.

Regarding claim **29**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, it is clear that such features (module or housing) as recited in the claim is just a hardware implementation of the receiver and would obvious to one

skilled in the art at the time the invention was made to implement, in order to have a real product for the receiver.

Regarding claim **30**, the claim is rejected for the same reason as set forth in claim 16 above.

Regarding claims **31**, the claims are rejected for the same reason as set forth in claims 23-27 above.

Regarding claims **50-53**, the claims are interpreted and rejected for the same reason as set forth in claim 29 above.

4. Claims **10-11, 17** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Oto** and **Mattison** in view of **Smith** (US 6,072,996).

Regarding claim **10**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to modify **Oto** and **Mattison** to further include filters following mixers as disclosed by **Smith** (see Fig. 1, refs. 120, 124), for further improving signal reception quality.

Regarding claim **11**, the claim is rejected for the same reason as set forth in claim 10 above. In addition, it is clear that band pass filters 120, 124 would filter other signals as claimed, in order to improve in-band signal reception quality.

Regarding claim **17**, the claim is rejected for the same reason as set forth in claim 1 above. In addition, since the use of resonance oscillator is well known in the art and since using a PLL synthesizer for generate a VCO LO signal is known as disclosed

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by **Smith** (see Fig. 3), it would have been obvious to one skilled in the art at the time the invention was made to further incorporate Smith's teaching to modify Oto and Mattison to provide an oscillator and PLL synthesizer as claimed, in order to generate a stabilized LO signal for improving system performance.

5. Claims **12-13** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Oto, Mattison and Smith** in view of **Lehtinen** (US 6,449,264).

Regarding claim **12**, the claim is rejected for the same reason as set forth in claim 10 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to modify Oto, Mattison and Smith to further include filters following a third mixer as disclosed by **Lehtinen** (see Fig. 3, refs. 110 or 113), for further improving signal reception quality.

Regarding claim **13**, the claim is rejected for the same reason as set forth in claim 12 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to further modify Lehtinen, Oto, Mattison and Smith to use printed filters as claimed, for further improving the performance of the filters.

6. Claims **20-22, 32-49** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Oto and Mattison** in view of **Lemley** (US 6,029,054).

Regarding claim **20**, the claim is rejected for the same reason as set forth in claim 1 above. However, Oto fails to disclose the IF frequencies are located between the upper limit of RF lower frequency band and lower limit of RF upper frequency band.



However, **Lemley** discloses a receiver wherein a multiple conversion for IF frequency is utilized and wherein the IF frequencies are located between the upper limit of RF lower frequency band and lower limit of RF upper frequency band (see band A and Band D in Fig. 2 and col. 3, lines 3-20). Since the use of multiple conversion is well known in the art, it would have been obvious to one skilled in the art at the time the invention was made to further incorporate **Lemley's** teaching to Oto and Mattison to provide a double conversion for the IF signal with the IF frequencies are located between the upper limit of RF lower frequency band and lower limit of RF upper frequency band as claimed, in order to narrow the variable frequency range of the LO signal, for simplifying the LO design.

Regarding claim **21**, the claim is rejected for the same reason as set forth in claim 20 above. In addition, **Lemley** discloses the output frequency is within the lower RF frequency band (see IF2 in Fig. 2 and col. 3, lines 3-20)..

Regarding claim **22**, the claim is rejected for the same reason as set forth in claim 20 above. In addition, **Lemley** discloses the output frequency is less than the IF frequencies (see IF2 in Fig. 2 and col. 3, lines 3-20).

Regarding claim **32**, the claim is rejected for the same reason as set forth in claim 20 above.

Regarding claims **33, 35**, the claims are rejected for the same reason as set forth in claim 32 above. In addition, it is clear that band pas filters would filter other signals as claimed, in order to improve in-band signal reception quality.

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Regarding claim **34**, the claim is rejected for the same reason as set forth in claim 32 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to further modify Lemley, Oto and Mattison to eliminate a pre-selection filter as claimed, for cost saving.

Regarding claims **36-45**, the claims are interpreted and rejected for the same reason as set forth in claims 20-22 above.

Regarding claims **46-49**, the claims are rejected for the same reason as set forth in claim 1 above. In addition, it would have been obvious to one skilled in the art at the time the invention was made to further modify Lemley, Oto and Mattison to provide a receiver operating in frequency range as claimed, for compliance with the FCC regulation.

### ***Allowable Subject Matter***

7. Claims 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US005852784A to Ito, US006088348A to Bell, US005875389A to Yokohama, US005847612A to Birleson, US005548839A to Caldwell et al, US006057876A to Waight, US 4313216 to Jaeger et al, and US 5014349 to Kubo et al.

9. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(571) 273-8300 (for formal communications intended for entry)

(571)-273-7893 (for informal or draft communications).

Hand-delivered responses should be brought to Customer Service Window,  
Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner  
should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893,  
Monday-Thursday (9:00 AM - 5:00 PM).

Or to Edward Urban (Supervisor) whose telephone number is (571) 272-7899.

Duc M. Nguyen



July 28, 2005